SEQUENCE LISTING

<110> BIOPROTEIN TECHNOLOGIES
      COHEN Jean, deceased
      SOLER Eric
      HOUDEBINE Louis-Marie
      SCHWARTZ-CORNIL Isabelle
      FOURGEUX Cynthia
      PAREZ Nathalie
      GARBARG-CHENON Antoine

<120> PREPARATION OF RECOMBINANT ROTAVIRUS PROTEINS IN MILK OF
      TRANSGENIC NON-HUMAN MAMMALS

<130> D21684

<140> PCT/IB2005/000896
<141> 2005-03-04

<150> EP 04/290 589
<151> 2004-03-04

<160> 23

<170> PatentIn version 3.3

<210> 1
<211> 2643
<212> DNA
<213> rotavirus

<220>
<223> VP2 strain RF open reading frame

<400> 1
atggcgtaca ggaaacgtgg agcgcgccgt gaggcgaata taaataataa tgaccgaatg   60
caagagaaag atgacgagaa acaagatcaa aacaatagaa tgcagttgtc tgataaagta   120
ctttcaaaga aagaggaagt cgtaaccgac agtcaagaag aaattaaaat tgctgatgaa   180
gtgaagaaat cgacgaaaga agaatctaaa caattgcttg aagttttgaa aacaaaagaa   240
gagcaccaaa aagagataca atatgaaatt ttgcaaaaaa cgataccaac atttgaacca   300
aaagagtcaa tattgaaaaa attggaggat atcaaaccgg aacaagcgaa gaagcagact   360
aagctattta gaatatttga accgagacag ctaccaattt atagagcgaa tggtgaaaaa   420
gagttgcgta acagatggta ttggaagctg aagaaagata ctttaccaga tggagattat   480
gatgttagag aatactttct aaatttgtat gatcaggttc ttactgaaat gccagattat   540
ttactattaa aagatatggc agttgaaaat aaaaattcga gagatgccgg taaagttgtt   600
gattctgaaa cagcaagtat ctgtgatgct atatttcaag atgaggaaac agaaggtgca   660
gtgagacgat tcattgcgga gatgagacag cgcgtacaag ctgacagaaa cgttgtcaat   720
tacccatcaa tattgcatcc aatagattac gcttttaatg agtatttttt gcaacaccaa   780
ttagttgaac cattgaataa tgatataata ttcaattaca ttcctgaaag gataaggaat   840
gacgttaact atatacttaa tatggacaga aatctgccat caacagctag atatataaga   900
cctaatttac tacaagacag actgaatttg catgacaatt ttgaatcctt gtgggataca   960
ataacaactt caaactatat tctggcaaga tcggtagtac cagatttaaa ggaattagtt   1020
tcaaccgaag cgcaaattca aaaaatgtca caagacttgc aactagaagc attaacaata   1080
cagtcagaaa cgcagttttt aacaggtata aactcacaag cagcaaatga ctgtttcaaa   1140
actctgattg cagcaatgtt aagtcaacga accatgtcgc ttgatttcgt gactacaaat   1200
tatatgtcat taatttcagg catgtggtta ctaactgtag tgccaaatga catgttcata   1260
agggaatcat tggttgcatg tcaactggct atagtgaata caataatata tccagcgttc   1320
ggaatgcaac gaatgcatta tagaaacgga gacccacaaa gaccatttca gatagcagaa   1380
caacaaatac aaaattttca agtagcgaat tggctgcatt ttgtcaataa caatcaattt   1440

```
agacaagtag ttattgatgg tgtattgaat caggtgctga atgacaatat tagaaatgga   1500
catgtcatta atcaattgat ggaagcttta atgcaactat cacgacaaca gtttccaaca   1560
atgcctgttg attataagag gtcaatccag cgtggaatat tattgctatc aaataggctt   1620
ggtcaattag ttgatttaac taggttatta gcttacaact acgaaacact aatggcatgt   1680
gttacgatga atatgcaaca tgttcagact ttgacaacag aaaaattaca gttaacttca   1740
gtcacatcgt tgtgtatgct tattggaaat gcaaccgtta tacccagccc gcagacattg   1800
tttcactatt ataatgttaa tgttaatttt cattcaaatt ataatgaaag aattaatgat   1860
gcagtggcca taataactgg agctaataga ctaaatttat atcagaaaaa gatgaaggca   1920
atagttgaag atttttaaa aagattacat attttcgatg tagctagagt tccagatgat   1980
caaatgtata gattaaggga tagactacga ctattgccag tagaagtaag acgattggat   2040
atttttaatt tgatactgat gaacatggat cagatagaac gcgcatcaga taaaattgcg   2100
caaggtgtta ttattgcgta ccgcgatatg caattggaaa gagacgaaat gtatggctac   2160
gtgaatatag ctagaaattt agatgggttc cagcaaataa acctagaaga attgatgaga   2220
acaggcgatt atgcacaaat aactaacatg ctcttgaata atcaaccagt agcgctagtt   2280
ggagctcttc catttgttac agactcgtca gtcatatcgt tgatagcgaa cgttgacgct   2340
acagtttttg cccaaatagt taaattacgg aaagttgata ccttgaaacc aatattgtat   2400
aaaataaatt cagattcgaa tgacttttac ctagttgcca actatgattg ggtgcctact   2460
tcaaccacaa aagtatataa gcaagttcca cagcaatttg atttcagaaa ttcgatgcat   2520
atgttaacat caaatcttac tttcactgtt tactctgatc tgcttgcatt cgtatcggcc   2580
gatacagtag aacctataaa tgcagttgca tttgataata tgcgcatcat gaacgagttg   2640
taa                                                                   2643


<210> 2
<211> 2643
<212> DNA
<213> Artificial sequence

<220>
<223> VP2 strain RF open reading frame, modified sequence

<400> 2
atggcgtaca ggaaacgtgg agcgcgccgt gaggcgaata taaataataa tgaccgaatg    60
caagagaaag atgacgagaa acaagatcaa aacaatagaa tgcagttgtc tgataaagta   120
ctttcaaaga aagaggaagt cgtaaccgac agtcaagaag aaattaaaat tgctgatgaa   180
gtgaagaaat cgacgaaaga agaatctaaa caattgcttg aagttttgaa aacaaaagaa   240
gagcaccaaa aagagataca atatgaaatt ttgcaaaaaa cgataccaac atttgaacca   300
aaagagtcaa tattgaaaaa attggaggat atcaaaccgg aacaagcgaa gaagcagact   360
aagctattta gaatatttga accgagacag ctaccaattt atagagcgaa tggtgaaaaa   420
gagttgcgta acagatggta ttggaagctg aagaaagata ctttaccaga tggagattat   480
gatgttagag aatactttct aaatttgtat gatcaggttc ttactgaaat gccagattat   540
ttactattaa aagatatggc agttgaaaat aagaattcga gagatgccgg taaagttgtt   600
gattctgaaa cagcaagtat ctgtgatgct atatttcaag atgaggaaac agaaggtgca   660
gtgagacgat tcattgcgga gatgagacag cgcgtacaag ctgacagaaa cgttgtcaat   720
tacccatcaa tattgcatcc aatagattac gcttttaatg agtatttttt gcaacaccaa   780
ttagttgaac cattgaataa tgatataata ttcaattaca ttcctgaaag gataaggaat   840
gacgttaact atatacttaa tatggacaga aatctgccat caacagctag atatataaga   900
cctaatttac tacaagacag actgaatttg catgacaatt ttgaatcctt gtgggataca   960
ataacaactt caaactatat tctggcaaga tcggtagtac cagatttaaa ggaattagtt   1020
tcaaccgaag cgcaaattca aaaaatgtca caagacttgc aactagaagc attaacaata   1080
cagtcagaaa cgcagttttt aacaggtata aactcacaag cagcaaatga ctgtttcaaa   1140
actctgattg cagcaatgtt aagtcaacga accatgtcgc ttgatttcgt gactacaaat   1200
tatatgtcat taatttcagg catgtggtta ctaactgtag tgccaaatga catgttcata   1260
agggaatcat tggttgcatg tcaactggct atagtgaata caataatata tccagcgttc   1320
ggaatgcaac gaatgcatta tagaaacgga gacccacaaa gaccatttca gatagcagaa   1380
caacaaatac aaaattttca gtagcgaat tggctgcatt ttgtcaataa caatcaattt   1440
agacaagtag ttattgatgg tgtattgaat caggtgctga atgacaatat tagaaatgga   1500
catgtcatta atcaattgat ggaagcttta atgcaactat cacgacaaca gtttccaaca   1560
atgcctgttg attataagag gtcaatccag cgtggaatat tattgctatc aaataggctt   1620
ggtcaattag ttgatttaac taggttatta gcttacaact acgaaacact aatggcatgt   1680
gttacgatga atatgcaaca tgttcagact ttgacaacag aaaaattaca gttaacttca   1740
```

```
gtcacatcgt tgtgtatgct tattggaaat gcaaccgtta tacccagccc gcagacattg   1800
tttcactatt ataatgttaa tgttaatttt cattcaaatt ataatgaaag aattaatgat   1860
gcagtggcca taataactgg agctaataga ctaaatttat atcagaaaaa gatgaaggca   1920
atagttgaag attttttaaa aagattacat attttcgatg tagctagagt tccagatgat   1980
caaatgtata gattaaggga tagactacga ctattgccag tagaagtaag acgattggat   2040
attttttaatt tgatactgat gaacatggat cagatagaac gcgcatcaga taaaattgcg   2100
caaggtgtta ttattgcgta ccgcgatatg caattggaaa gagacgaaat gtatggctac   2160
gtgaatatag ctagaaattt agatgggttc cagcaaataa acctagaaga attgatgaga   2220
acaggcgatt atgcacaaat aactaacatg ctcttgaata atcaaccagt agcgctagtt   2280
ggagctcttc catttgttac agactcgtca gtcatatcgt tgatagcgaa cgttgacgct   2340
acagtttttg cccaaatagt taaattacgg aaagttgata ccttgaaacc aatattgtat   2400
aaaataaatt cagattcgaa tgactttttac ctagttgcca actatgattg ggtgcctact   2460
tcaaccacaa aagtatataa gcaagttcca cagcaatttg atttcagaaa ttcgatgcat   2520
atgttaacat caaatcttac tttcactgtt tactctgatc tgcttgcatt cgtatcggcc   2580
gatacagtag aacctataaa tgcagttgca tttgataata tgcgcatcat gaacgagttg   2640
taa                                                                  2643
```

<210> 3
<211> 2643
<212> DNA
<213> Artificial sequence

<220>
<223> VP2 strain RF open reading frame, modified sequence

<400> 3
```
atggcgtaca ggaaacgtgg agcgcgccgt gaggcgaata aaataataa tgaccgaatg   60
caagagaaag atgacgagaa acaagatcaa aacaatagaa tgcagttgtc tgataaagta   120
ctttcaaaga aagaggaagt cgtaaccgac agtcaagaag aaattaaaat tgctgatgaa   180
gtgaagaaat cgacgaaaga agaatctaaa caattgcttg aagttttgaa aacaaaagaa   240
gagcaccaaa aagagataca atatgaaatt ttgcaaaaaa cgataccaac atttgaacca   300
aaagagtcaa tattgaaaaa attggaggat atcaaaccgg aacaagcgaa gaagcagact   360
aagctattta gaatatttga accgagacag ctaccaattt atagagcgaa tggtgaaaaa   420
gagttgcgta acagatggta ttggaagctg aagaaagata ctttaccaga tggagattat   480
gatgttagag aatactttct aaatttgtat gatcaggttc ttactgaaat gccagattat   540
ctcctcctga agatatggc agttgaaaat aagaattcga gagatgccgg taaagttgtt   600
gattctgaaa cagcaagtat ctgtgatgct atatttcaag atgaggaaac agaaggtgca   660
gtgagacgat tcattgcgga gatgagacag cgcgtacaag ctgacagaaa cgttgtcaat   720
tacccatcaa tattgcatcc aatagattac gctttttaatg agtatttttt gcaacaccaa   780
ttagttgaac cattgaataa tgatataata ttcaattaca ttcctgaaag ataaggaat   840
gacgttaact atatacttaa tatggacaga aatctgccat caacagctag atatataaga   900
cctaatttac tacaagacag actgaatttg catgacaatt ttgaatcctt gtgggataca   960
ataacaactt caaactatat tctggcaaga tcggtagtac cagatttaaa ggaattagtt   1020
tcaaccgaag cgcaaattca aaaaatgtca caagacttgc aactagaagc attaacaata   1080
cagtcagaaa cgcagttttt aacaggtata aactcacaag cagcaaatga ctgtttcaaa   1140
actctgattg cagcaatgtt aagtcaacga accatgtcgc ttgatttcgt gactacaaat   1200
tatatgtcat taatttcagg catgtggtta ctaactgtag tgccaaatga catgttcata   1260
agggaatcat tggttgcatg tcaactggct atagtgaata caataatata tccagcgttc   1320
ggaatgcaac gaatgcatta tagaaacgga gacccacaaa gaccatttca gatagcagaa   1380
caacaaatac aaaatttttca agtagcgaat tggctgcatt ttgtcaataa caatcaattt   1440
agacaagtag ttattgatgg tgtattgaat caggtgctga atgacaatat tagaaatgga   1500
catgtcatta atcaattgat ggaagcttta atgcaactat cacgacaaca gtttccaaca   1560
atgcctgttg attataagag gtcaatccag cgtggaatat tattgctatc aaataggctt   1620
ggtcaattag ttgatttaac taggttatta gcttacaact acgaaacact aatggcatgt   1680
gttacgatga atatgcaaca tgttcagact ttgacaacag aaaaattaca gttaacttca   1740
gtcacatcgt tgtgtatgct tattggaaat gcaaccgtta tacccagccc gcagacattg   1800
tttcactatt ataatgttaa tgttaatttt cattcaaatt ataatgaaag aattaatgat   1860
gcagtggcca taataactgg agctaataga ctaaatttat atcagaaaaa gatgaaggca   1920
atagttgaag attttttaaa aagattacat attttcgatg tagctagagt tccagatgat   1980
caaatgtata gattaaggga tagactacga ctattgccag tagaagtaag acgattggat   2040
```

```
attttaatt  tgatactgat  gaacatggat  cagatagaac  gcgcatcaga  taaaattgcg   2100
caaggtgtta  ttattgcgta  ccgcgatatg  caattggaaa  gagacgaaat  gtatggctac   2160
gtgaatatag  ctagaaattt  agatgggttc  cagcaaataa  acctagaaga  attgatgaga   2220
acaggcgatt  atgcacaaat  aactaacatg  ctcttgaata  atcaaccagt  agcgctagtt   2280
ggagctcttc  catttgttac  agactcgtca  gtcatatcgt  tgatagcgaa  cgttgacgct   2340
acagttttttg  cccaaatagt  taaaattacgg  aaagttgata  ccttgaaacc  aatattgtat   2400
aaaataaatt  cagattcgaa  tgactttttac  ctagttgcca  actatgattg  ggtgcctact   2460
tcaaccacaa  aagtatataa  gcaagttcca  cagcaatttg  atttcagaaa  ttcgatgcat   2520
atgttaacat  caaatcttac  tttcactgtt  tactctgatc  tgcttgcatt  cgtatcggcc   2580
gatacagtag  aacctataaa  tgcagttgca  tttgataata  tgcgcatcat  gaacgagttg   2640
taa                                                                      2643
```

<210> 4
<211> 2643
<212> DNA
<213> Artificial sequence

<220>
<223> VP2 strain RF open reading frame, modified sequence

<400> 4
```
atggcgtaca  ggaaacgtgg  agcgcgccgt  gaggcgaata  taaataataa  tgaccgaatg     60
caagagaaag  atgacgagaa  acaagatcaa  aacaatagaa  tgcagttgtc  tgataaagta    120
ctttcaaaga  aagaggaagt  cgtaaccgac  agtcaagaag  aaattaaaat  tgctgatgaa    180
gtgaagaaat  cgacgaaaga  agaatctaaa  caattgcttg  aagttttgaa  aacaaaagaa    240
gagcaccaaa  aagagataca  atatgaaatt  ttgcaaaaaa  cgataccaac  atttgaacca    300
aaagagtcaa  tattgaaaaa  attggaggat  atcaaaccgg  aacaagcgaa  gaagcagact    360
aagctatta  gaatatttga  accgagacag  ctaccaattt  atagagcgaa  tggtgaaaaa    420
gagttgcgta  acagatggta  ttggaagctg  aagaaagata  ctttaccaga  tggagattat    480
gatgttagag  aatactttct  aaatttgtat  gatcaggttc  ttactgaaat  gccagattat    540
ttactattaa  aagatatggc  agttgaaaat  aagaattcga  gagatgccgg  taaagttgtt    600
gattctgaaa  cagcaagtat  ctgtgatgct  atatttcaag  atgaggaaac  agaaggtgca    660
gtgagacgat  tcattgcgga  gatgagacag  cgcgtacaag  ctgacagaaa  cgttgtcaat    720
tacccatcaa  tattgcatcc  aatagattac  gcttttaatg  agtatttttt  gcaacaccaa    780
ttagttgaac  cattgaataa  tgatataata  ttcaattaca  ttcctgaaag  gataaggaat    840
gacgttaact  atatacttaa  tatggacaga  aatctgccat  caacagctag  atatataaga    900
cctaatttac  tacaagacag  actgaatttg  catgacaatt  ttgaatcctt  gtgggataca    960
ataacaactt  caaactatat  tctggcaaga  tcggtagtac  cagatttaaa  ggaattagtt   1020
tcaaccgaag  cgcaaattca  aaaaatgtca  caagacttgc  aactagaagc  attaacaata   1080
cagtcagaaa  cgcagtttttt  aacaggtata  aactcacaag  cagcaaatga  ctgtttcaaa   1140
actctgattg  cagcaatgtt  aagtcaacga  accatgtcgc  ttgatttcgt  gactacaaat   1200
tatatgtcat  taatttcagg  catgtggtta  ctaactgtag  tgccaaatga  catgttcata   1260
agggaatcat  tggttgcatg  tcaactggct  atagtgaata  caataatata  tccagcgttc   1320
ggaatgcaac  gaatgcatta  tagaaacgga  gacccacaaa  gaccatttca  gatagcagaa   1380
caacaaatac  aaaattttca  agtagcgaat  tggctgcatt  ttgtcaataa  caatcaattt   1440
agacaagtag  ttattgatgg  tgtattgaat  caggtgctga  atgacaatat  tagaaatgga   1500
catgtcatta  atcaattgat  ggaagcttta  atgcaactat  cacgacaaca  gtttccaaca   1560
atgcctgttg  attataagag  gtcaatccag  cgtggaatat  tattgctatc  aaataggctt   1620
ggtcaattag  ttgatttaac  taggttatta  gcttacaact  acgaaacact  aatggcatgt   1680
gttacgatga  atatgcaaca  tgttcagact  ttgacaacag  aaaaattaca  gttaacttca   1740
gtcacatcgt  tgtgtatgct  tattggaaat  gcaaccgtta  tacccagccc  gcagacattg   1800
tttcactatt  ataatgttaa  tgttaatttt  cattcaaatt  ataatgaaag  aattaatgat   1860
gcagtggcca  taataactgg  agctaataga  ctaaatttat  atcagaaaaa  gatgaaggca   1920
atagttgaag  atttttttaaa  aagattacat  attttcgatg  tagctagagt  tccagatgat   1980
caaatgtata  gattaaggga  tagactacga  ctattgccag  tagaagtaag  acgattggat   2040
attttttaatt  tgatactgat  gaacatggat  cagatagaac  gcgcatcaga  taaaattgcg   2100
caaggtgtta  ttattgcgta  ccgcgatatg  caattggaaa  gagacgaaat  gtatggctac   2160
gtgaatatag  ctagaaattt  agatgggttc  cagcaaataa  acctagaaga  attgatgaga   2220
acaggcgatt  atgcacaaat  aactaacatg  ctcttgaata  atcaaccagt  agcgctagtt   2280
ggagctcttc  catttgttac  agactcgtca  gtcatttccc  tcatcgctaa  cgttgacgct   2340
```

```
acagttttttg cccaaatagt taaattacgg aaagttgata ccttgaaacc aatattgtat   2400
aaaataaatt cagattcgaa tgactttttac ctagttgcca actatgattg ggtgcctact    2460
tcaaccacaa aagtatataa gcaagttcca cagcaatttg atttcagaaa ttcgatgcat    2520
atgttaacat caaatcttac tttcactgtt tactctgatc tgcttgcatt cgtatcggcc    2580
gatacagtag aacctataaa tgcagttgca tttgataata tgcgcatcat gaacgagttg    2640
taa                                                                   2643


<210> 5
<211> 2643
<212> DNA
<213> Artificial sequence

<220>
<223> VP2 strain RF open reading frame, modified sequence

<400> 5
atggcgtaca ggaaacgtgg agcgcgccgt gaggcgaata taaataataa tgaccgaatg     60
caagagaaag atgacgagaa acaagatcaa aacaatagaa tgcagttgtc tgataaagta    120
ctttcaaaga aagaggaagt cgtaaccgac agtcaagaag aaattaaaat tgctgatgaa    180
gtgaagaaat cgacgaaaga agaatctaaa caattgcttg aagtttttgaa aacaaaagaa    240
gagcaccaaa aagagataca atatgaaatt ttgcaaaaaa cgataccaac atttgaacca    300
aaagagtcaa tattgaaaaa attggaggat atcaaaccgg aacaagcgaa gaagcagact    360
aagctatttta gaatatttga accgagacag ctaccaattt atagagcgaa tggtgaaaaa    420
gagttgcgta acagatggta ttggaagctg aagaaagata ctttaccaga tggagattat    480
gatgttagag aatactttct aaatttgtat gatcaggttc ttactgaaat gccagattat    540
ctcctcctga agatatggc agttgaaaat aagaattcga gagatgccgg taaagttgtt      600
gattctgaaa cagcaagtat ctgtgatgct atatttcaag atgaggaaac agaaggtgca     660
gtgagacgat tcattgcgga gatgagacag cgcgtacaag ctgacagaaa cgttgtcaat    720
tacccatcaa tattgcatcc aatagattac gctttttaatg agtatttttt gcaacaccaa    780
ttagttgaac cattgaataa tgatataata ttcaattaca ttcctgaaag gataaggaat    840
gacgttaact atatacttaa tatggacaga aatctgccat caacagctag atatataaga    900
cctaatttttac tacaagacag actgaatttg catgacaatt ttgaatcctt gtgggataca    960
ataacaactt caaactatat tctggcaaga tcggtagtac cagatttaaa ggaattagtt   1020
tcaaccgaag cgcaaattca aaaaatgtca caagacttgc aactagaagc attaacaata   1080
cagtcagaaa cgcagttttt aacaggtata aactcacaag cagcaaatga ctgtttcaaa   1140
actctgattg cagcaatgtt aagtcaacga accatgtcgc ttgatttcgt gactacaaat   1200
tatatgtcat taatttcagg catgtggtta ctaactgtag tgccaaatga catgttcata   1260
agggaatcat tggttgcatg tcaactggct atagtgaata caataatata tccagcgttc   1320
ggaatgcaac gaatgcatta tagaaacgga gacccacaaa gaccatttca gatagcagaa   1380
caacaaatac aaaattttca agtagcgaat tggctgcatt ttgtcaataa caatcaattt   1440
agacaagtag ttattgatgg tgtattgaat caggtgctga atgacaatat tagaaatgga   1500
catgtcatta atcaattgat ggaagcttta atgcaactat cacgacaaca gtttccaaca   1560
atgcctgttg attataagag gtcaatccag cgtggaatat tattgctatc aaataggctt   1620
ggtcaattag ttgatttaac taggttatta gcttacaact acgaaacact aatggcatgt   1680
gttacgatga atatgcaaca tgttcagact ttgacaacag aaaaattaca gttaacttca   1740
gtcacatcgt tgtgtatgct tattggaaat gcaaccgtta tacccagccc gcagacattg   1800
tttcactatt ataatgttaa tgttaatttt cattcaaatt ataatgaaag aattaatgat   1860
gcagtggcca taataactgg agctaataga ctaaatttat atcagaaaaa gatgaaggca   1920
atagttgaag ttttttaaa aagattacat attttcgatg tagctagagt tccagatgat   1980
caaatgtata gattaaggga tagactacga ctattgccag tagaagtaag acgattggat   2040
atttttaatt tgatactgat gaacatggat cagatagaac gcgcatcaga taaaattgcg   2100
caaggtgtta ttattgcgta ccgcgatatg caattggaaa gagacgaaat gtatggctac   2160
gtgaatatag ctagaaattt agatgggttc cagcaaataa acctagaaga attgatgaga   2220
acaggcgatt atgcacaaat aactaacatg ctcttgaata atcaaccagt agcgctagtt   2280
ggagctcttc catttgttac agactcgtca gtcatttccc tcatcgctaa cgttgacgct   2340
acagttttttg cccaaatagt taaattacgg aaagttgata ccttgaaacc aatattgtat   2400
aaaataaatt cagattcgaa tgactttttac ctagttgcca actatgattg ggtgcctact   2460
tcaaccacaa aagtatataa gcaagttcca cagcaatttg atttcagaaa ttcgatgcat   2520
atgttaacat caaatcttac tttcactgtt tactctgatc tgcttgcatt cgtatcggcc   2580
gatacagtag aacctataaa tgcagttgca tttgataata tgcgcatcat gaacgagttg   2640
```

```
taa                                                                   2643


<210> 6
<211> 2797
<212> DNA
<213> Artificial sequence

<220>
<223> VP2 strain RF open reading frame, modified sequence
     and with signal peptide

<400> 6
gcgcgcggat cccaaggccc aactccccga accactcagg gtcctgtgga cagctcacct     60
agccgccatg gctccaggct cccggacgtc cctgctcctg gcttttgccc tgctctgcct    120
gccctggctt caggaggctg cgcgcgtgat ggcttacagg aaacgtggag cccgccgtga    180
ggctaatatt aataataatg acagaatgca ggagaaagat gacgagaaac aggatcagaa    240
caatagaatg cagctgtctg ataaagtgct ttcaaagaaa gaggaagtcg tcaccgacag    300
tcaggaagaa attaaaattg ctgatgaagt gaagaaatcc acgaaagaag aatctaaaca    360
gctccttgaa gttctgaaaa caaaagaaga gcaccagaaa gagatccagt atgaaattct    420
ccagaaaacg attccaacat ttgaaccaaa agagtcaatc ctgaaaaaac tcgaggatat    480
caaacccgaa caggcgaaga agcagactaa gctgtttaga attttgaac ccagacagct     540
cccaatctat agagctaatg gcgaaaaaga gctgcgtaac agatggtatt ggaagctgaa    600
gaaagatact ctgccagatg gagattatga tgttagagaa tactttctga atctctatga    660
tcaggttctt actgaaatgc cagattatct cctcctgaaa gatatggcag ttgaaaataa    720
gaatagcaga gatgccggaa aagttgttga ttctgaaaca gcaagtatct gtgatgctat    780
ctttcaagat gaggaaacag aaggcgcagt gagaagattc attgccgaga tgagacagcg    840
cgtgcaggct gacagaaacg ttgtcaatta cccatcaatt ctgcatccaa tcgattacgc    900
ttttaatgag tattttctcc agcaccagct cgttgaacca ctgaataatg atattatctt    960
caattacatt cctgaaagga ttaggaatga cgttaactat atccttaata tggacagaaa   1020
tctgccatca acagctagat atattagacc taatctgctg caggacagac tgaatctcca   1080
tgacaatttt gaatccctgt gggatacaat cacaacttca aactatattc tggcaagatc   1140
cgtcgtgcca gatctcaagg aactggtttc aaccgaagct cagattcaga aaatgtcaca   1200
ggacctccag ctcgaagcac tcacaattca gtcagagacg cagtttctga caggaatcaa   1260
ctcacaggca gcaaatgact gtttcaaaac tctgattgca gcaatgctca gtcagagaac   1320
catgagcctt gatttcgtga ctacaaatta tatgtcactg atttcaggca tgtggctcct   1380
gactgtcgtg ccaaatgaca tgttcattag ggaatcactg gttgcatgtc agctggctat   1440
cgtgaataca attatctatc cagcgttcgg aatgcagaga atgcattata gaaacggaga   1500
cccacagaca ccatttcaga ttgcagaaca gcagatccag aattttcagg tggctaattg   1560
gctgcatttt gtcaacaaca atcagtttag acaggtcgtt attgatggcg tgctcaatca   1620
ggtgctgaat gacaatatta gaaatggaca tgtcattaat cagctgatgg aagctctgat   1680
gcagctctca gacagcagt ttccaacaat gcctgttgat tataagaggt caatccagcg    1740
tggaattctc ctcctgtcaa ataggcttgg acagctggtt gatctcactc ggctgctcgc   1800
ttacaactac gaaacactca tggcatgtgt tacgatgaat atgcagcatg ttcagactct   1860
gacaacagaa aaactgcagc tcacttcagt cacatccctc tgtatgctta ttggaaatgc   1920
aaccgttatc cccagccccc agacactgtt tcactattac aatgttaatg ttaattttca   1980
ttcaaattat aatgaaagaa ttaatgatgc agtggccatt atcactgcag ctaatagact   2040
gaatctgtat cagaaaaaga tgaaggcaat tgttgaagat tttctcaaaa gactgcatat   2100
tttcgatgtc gctagagttc cagatgatca gatgtataga ctcagggata gactcagact   2160
gctcccagtg gaagtcagaa gactggatat ttttaatctc atcctgatga acatggatca   2220
gattgaacgc gcatcagata aaattgccca gggcgttatt attgcttacc gcgatatgca   2280
gctggaaaga gacgaaatgt atggctacgt gaatatcgct agaaatctgg atggattcca   2340
gcagattaac ctcgaagaac tcatgagaac aggcgattat gcacagatca ctaacatgct   2400
cctgaataat cagccagtgg cgctggttgg agctcttcca tttgttacag acagctcagt   2460
catttccctc atcgctaagc ttgacgctac agttttttgcc cagattgtta aactcaggaa   2520
agttgatacc ctgaaaccaa tcctctataa aattaattca gatagcaatg acttttacct   2580
cgttgccaac tatgattggg tgcctacttc aaccacaaaa gtctataagc aggttccaca   2640
gcagtttgat ttcagaaatt ccatgcatat gctgacatca aatcttactt tcactgttta   2700
ctcagatctg cttgcattcg tgagcgccga tacagtcgaa cctatcaatg cagttgcatt   2760
tgataatatg cgcatcatga acgagctgta agcgcgc                            2797
```

<210> 7
<211> 783
<212> DNA
<213> Porcine rotavirus

<220>
<223> VP4 gene for capsid protein, partial cds

<400> 7
```
aatctttctg acgaaattca agatattgga tcagctaagt cgcaggatgt tactataaat      60
cctggtccat tcgcacaaac aggttacgca ccagttaatt ggggagcagg tgagactaat     120
gactccacaa ctgtcaagcc attattagat ggtccggacc aaccaaccac tttcaaccca     180
ccaacaagct attggatatt acttgcgcca actgtagagg gcgtaattat ccaaggaaca     240
aacaatatcg atagatggtt ggctactata ctaattgaac caaacgtgca agcaactaat     300
agaatataca atccttttgg tcagcaagaa actttatcgg ttgaaaatac ataccagaca     360
caatggacgt tcattgttgt aagtaaaact acactagctg gaagttatac acagcatgga     420
ctattgctct ctacaccaaa ctcatacgct gtaatgggat tcagcggtag aatatataca     480
tataatggaa ccacgccaaa cgcagcaaca ggatactatt cagctactga ctatgacaca     540
gtaaatatga catcattttg tgacttttac attataccaa gaaatcaaga agaaaaatgt     600
actgagtata tcaatcacgg attacctccc atacaaaata cgaggaatgt tgtgccagta     660
tccttatcgg ctagagagat agtgcacaca agagctcaag ttaatgaaga tattgttgtt     720
tcaaaaactt cactttggaa agaaatgcaa tataacagag acataaccat aagattcaat     780
ttt                                                                   783
```

<210> 8
<211> 799
<212> DNA
<213> Human rotavirus

<220>
<223> P1B VP4 gene, partial cds

<400> 8
```
ccgattcata ttcagtagac ttgcatgatg aaatagaaca gattggatca gagaaaactc      60
aaaatgtaac gataaatcca ggtccatttg cacagactag atatgctcca gttaattggg     120
gacatgggga gattaatgat tcaactatag tggaaccagt tttagatggt ccttatcaac     180
ccactacgtt caaaccacct aatgattatt ggctacttat tagctcaaat acagatggag     240
tagtttatga aagtacaaat aatagtgact tttggacagc agttatcgct gttgaaccac     300
atgttagtca aacaaataga caatatattt tatttggtga aaataagcag tttaatatag     360
aaaataattc agataaatgg aaatttttcg aaatgttcaa aggtagtagt cagggtgaat     420
tttctaatag acgaactcta acttctaata atagactcgt aggaatgcta aaatatggtg     480
gaaaagtatg gacatttcat ggtgaaacgc caagagccac tactgatagg tcagatactg     540
cggatttaaa taatatatca attataattc attcagagtt ttatatcatt ccaagatctc     600
aagaatctaa atgtaatgag tatattaata atggtttgcc accaattcag aatactagga     660
acgtagttcc attatctcta tcatccagat ctattcaata taggagagca caagttaatg     720
aagatattac aatttcaaaa acttcattat ggaaggaaat gcaatgtaat agagatatta     780
taataagatt taaatttgg                                                  799
```

<210> 9
<211> 875
<212> DNA
<213> Human rotavirus

<220>
<223> P3 truncated VP4 protein gene, partial cds

<400> 9
```
tcgctcattt atagacagtt actatcaaac tcatatgtta caaacatctc tgacgaaatt      60
```

```
aatgaaattg gaactaaaaa agcaactaac gttactgtta atccagggcc attcgcacaa    120
acgggatatg cgcctgtcga ctggggacat ggtgaattgc ctgactctac attagtgcaa    180
ccaactcttg atggtccata ccaacccact tcacttaatt tgccagtcga ttattggatg    240
ttaattgcgc ctactagaga agggaaagtt gctgaaggta cgaatactac tgacagatgg    300
ttcgcttgtg tactagttga gccaaatgtg caaaatacac aaaggcaata cgtattagat    360
gggcgaaatg tccaattaca tgtctcaaac gattcaagta cttcgtggaa atttatatta    420
ttcattaaat tgacgcccga cggaacgtac actcaatact caaccttgtc aacaccgcat    480
aagttatgcg cgtgaatgaa aagagataac agagtatact ggtatcaagg aacgacaccg    540
aacgcatcag agagctatta cttgacaata aacaatgaca acagcaacgt ttcaagtgac    600
gctgaattcc atttgatacc gcaatcgcag actgccatgt gtacacaata tataaacaat    660
ggtttaccac caattcagaa tacaaggaat attgtaccag taaatattac atctagacag    720
attaaagaca taagagctca gatgaatgaa gacatagtga tatcaaaaac ttcgctatgg    780
aaagaaatgc aatataatac agatataatc attagattta aatttgctaa ttcaataatc    840
aaatcaggtg ggctaggtta taaatggtcc gaaat    875
```

```
<210> 10
<211> 1194
<212> DNA
<213> rotavirus

<220>
<223> VP6 strain RF open reading frame

<400> 10
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa    60
ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaagaat aaattttgac aattcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctctttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa    1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgtaccagtt ggaccagtt    1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat    1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga    1194
```

```
<210> 11
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 11
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa    60
ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
```

```
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaagaat aaattttgac aattcatcag aatacataga gaactggaat      420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacag cccgctcatg ataacctgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa    1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgataccagt tggaccagtt    1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat    1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga          1194
```

```
<210> 12
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 12
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa    60
ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaagaat aaattttgac cagtcatcag aatacataga gaactggaat      420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacaa ccgctcatg ataacttgat gggtacgatg     540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa    1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgataccagt tggaccagtt    1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat    1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga          1194
```

```
<210> 13
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 13
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa    60
ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
```

```
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaaagaat aaattttgac aattcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa   1020
acaatgctag cacaagtgac atctgttaga .caagaatacg cgataccagt tggaccagtt   1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat   1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194
```

<210> 14
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 14
```
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaaagaat aaattttgac cagtcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacag cccgctcatg ataacctgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa   1020
acaatgctag cacaagtgac atctgttaga caagaatacg cgataccagt tggaccagtt   1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat   1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194
```

<210> 15
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 15
```
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact    120
```

```
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaaagaat aaattttgac cagtcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa   1020
acaatgctag cacaagtgac atctgttaga caagaatacg cgataccagt tggaccagtt   1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat   1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga          1194
```


<210> 16
<211> 1348
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence,
      with signal peptide

<400> 16
```
gcgcgcggat cccaaggccc aactccccga accactcagg gtcctgtgga cagctcacct     60
agccgccatg gctccaggct cccggacgtc cctgctcctg gcttttgccc tgctctgcct    120
gccctggctt caggaggctg gcgccgtgat ggatgtcctg tactccctct caaaaactct    180
taaagatgct agagacaaaa ttgtcgaagg cacactgtac tcccaagtca gtgatctcat    240
tcagcagttt aatcagatga ttattactat gaatggcaat gagttccaga ctggaggcat    300
tggcaatctc cccattagaa attggaattt tgattttgga ctccttggaa caactctgct    360
caatctggat gctaactacg tcgaaacggc ccgcaataca attgattatt ttgtcgattt    420
tgtggataat gtctgtatgg acgaaatggt tagagaatca cagagaaatg gcattgcacc    480
acagtcagat tcacttatca agctctcagg cattaaattc aaacgcatta attttgacca    540
gtcatcagaa tacatcgaga ctggaatct gcaaatagga agacagagaa cgggattcac    600
atttcataaa ccaaacattt cccttattc cgcttccttc acgtccagc gctcacagcc    660
cgctcatgat aacctgatgg gcacgatgtg gctcaatgct ggctcagaaa tccaggtcgc    720
tggattcgac tactcatgtg caattaacgc cccagctaat acgcagcagt ttgagcatat    780
tgtgcagctt agaagggtgc tcactacagc tacaatcact cttctgccag atgcagaaag    840
attcagtttt cccagagtga ttacttcagc tgacggagct actacatggt acttcaatcc    900
agtgattctt agaccaaata cgttgaaat tgagtttctg ctcaacggac agatcattaa    960
tacttaccag gcaagatttg gaacgatcat cgctagaaat tttgatacaa ttagactgtc   1020
atttcagctc atgagaccac caaacatgac accagccgtc gctgccctct ttccaaatgc   1080
tcagccattt gaacatcacg caacagtggg actcacgctt agaattgaat cagcagtgtg   1140
tgaatcagtc cttgccgacg caagcgaaac aatgctggca caagtgacat ctgttagaca   1200
ggaatacgcc attccagttg accagttttt ccaccagga atgcagtgga ctgatctgat   1260
cactaactat tcaccatcta gagaggataa cctccagcgc gtgtttacag tggcatccat   1320
tcgcagcatg cttgtcaaat gagcgcgc                                       1348
```


<210> 17
<211> 1061
<212> DNA
<213> Human rotavirus

<220>

<223> G9 strain 97CM113 outer capsid protein (VP7)

<400> 17

```
ggctttaaaa gagagaattt ccgtctggct agcggttatt tccttttaat gtatggtatt          60
gaatatacca caattctaac ctttctgata tcaatagttt tattgaacta tatattaaaa         120
tcactaacta gtgcgatgga cttcataatt tatagatttc ttttacttat tgttattgca         180
tcaccttttg ttaaaacaca aaattatgga attaatttac cgatcactgg ctccatggat         240
acagcatatg caaattcatc acagcaagaa acatttttga cttcaacgct atgcttatat         300
tatcctacag aagcgtcaac tcaaattgga gatacggaat ggaaggatac tctgtcccaa         360
ttattcttga ctaaagggtg gccaactgga tcagtctatt ttaaagaata caccgatatc         420
gcttcattct caattgatcc gcaactttat tgtgattata atgttgtact gatgaagtat         480
gattcaacgt tagagctaga tatgtctgaa ttagctgatt taattctaaa tgaatggtta         540
tgtaacccaa tggatataac attatattat tatcagcaaa cagatgaagc gaataaatgg         600
atatcgatgg gacagtcttg taccataaaa gtatgtccat tgaatacgca gactttagga         660
ataggttgta ttaccacaaa tacagcgaca tttgaagagg tggctacaag tgaaaaatta         720
gtaataaccg atgttgttga tggtgtgaac cataaacttg atgtgactac aaatacctgt         780
acaattagga attgtaagaa gttgggacca agagaaaatg tagcgattat acaagtcggt         840
ggctcagatg tgttagatat tacagcggat ccaactactg caccacaaac tgaacgtatg         900
atgcgagtaa attggaagaa atggtggcaa gttttctata cagtagtaga ttatattaat         960
cagattgtgc aagttatgtc caaaagatca cggtcattaa attcagcagc tttttactat        1020
agggtttgat atatcttaga ttagaattgt atgatgtgac c                            1061
```


<210> 18
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G9 strain 02-22 capsid protein VP7 gene

<400> 18

```
ggctttaaaa gagagaattt ccgtctggct agcggttagc tccttttaat gtatggtatt          60
gaatatacca caattctaac ctttctgata tcaatagttt tattgaacta tatattaaaa         120
tcactaacta gtgcgatgga ctttataatt tatagatttc ttttacttat tgttattgca         180
tcatcttttg ttaaaacaca aaattatgga attaatttac cgatcactgg ctccatggat         240
acagcatatg caaattcatc acagcaagaa acatttttga cttcaacgct atgcttatat         300
tatcctacag aagcatcaac tcaaattgga gatacggaat ggaaggatac tctgtcccaa         360
ttattcttga ctaaagggtg gccaactgga tcagtctatt ttaaagaata cactgatatc         420
gcttcattct caattgatcc acaactttat tgtgattata atgttgtact gatgaagtat         480
gattcaacgt tagagctaga tatgtctgaa ttagctgatt taattctaaa tgaatggtta         540
tgtaacccaa tggatataac attatattat tatcagcaaa cagatgaagc gaataaatgg         600
atatcgatgg gacagtcttg taccataaaa gtatgtccat tgaatacgca gactttagga         660
ataggttgta ttaccacaaa tacagcgaca tttgaagagg tggctacaag tgaaaaatta         720
gtaataaccg atgttgttga tggtgtgaac cataaacttg atgtgactac aaatacctgt         780
acaattagga attgtaagaa gttaggacca agagaaaatg tagcgattat acaagtcggt         840
ggctcagatg tgttagatat tacagcggat ccaactactg caccacaaac tgaacgtatg         900
atgcgagtaa attggaagaa atggtggcaa gttttctata cggtagtaga ttatattaat         960
cagattgtgc aagttatgtc caaaagatca cggtcattaa attcagcagc tttttactat        1020
agggtttgat atatcttagg ttagaattgt atgatgtgac ca                           1062
```


<210> 19
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G3 strain MaCH09004 outer capsid protein (VP7) gene,
      complete cds

<400> 19
```
ggctttaaaa gagagaattt ccgtctggct agcggttagc tccttttaat gtatggtatt      60
gaatatacca cagttttaac ctttttgata tcagttatat tgttgaatta cgtactcaaa     120
tccttaacta gaataatgga ctttattatt tacagatttc ttttaattat agttatatta     180
tcaccactcc ttaatgcaca aaattatgga ataaatcttc cgattactgg ctcaatggac     240
acaccatata cgaactcaac gcgagaggaa gtattcctaa cttcgacttt atgtttgtat     300
tacccaactg aagcagcaac agaaataaat gataattcat ggaaggatac actttctcag     360
ctatttttaa tcaaaggatg gccaacagga tctatttatt ttaaagatta tactgatatt     420
gcctcgtttt cagtcgatcc acaactgtat tgtgattata atttggtatt aatgaaatat     480
gacgctacac tgcaactgga catgtccgaa ctagcagatt tgttacttaa tgagtggtta     540
tgtaatccta tggatattac tttgtattat tatcaacaaa ctgatgaggc aaataaatgg     600
atttcaatgg gatcatcttg tactataaag gtatgtccac taaatacgca aacattagga     660
attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacagc tgaaaaatta     720
gtgattactg acgttgtaga tggagtcaat cataaattga acgtgacaac aaacacttgt     780
acgattcgaa attgtaagaa attaggacca agggaaaacg tagcagttat acaggtaggt     840
ggcccagatg tgcttgacat aacagctgat ccaacgacaa tgccacaaac agaaagaatg     900
atgcgagtga attggaagaa atggtggcaa gtgttttata caatagttga ctacgtgaat     960
caaattgtgc aagcaatgtc caaaagatcg agatcattaa attctgctgc attttactac    1020
agagtataga tatagcttag attagaattg tatgatgtga cc                        1062
```

<210> 20
<211> 981
<212> DNA
<213> Human rotavirus

<220>
<223> G12 VP7 gene for capsid protein, complete cds

<400> 20
```
atgtatggta ttgaatatac cacaattcta accttttga tatcaattgt tctattaaat      60
tatatattaa aatcaataac taatataatg gactttatca tatatcggtt tttactaata     120
gttgttgtca tgctgccatt tattaaagct caaaattatg gaataaatct tccaataaca     180
ggttctatgg ataccgcata tacaaactcc acacaacaag agaattttat gacttccact     240
ttatgcttat attatccaag ttcagtcacg actgaaataa ctgaccccga ttggacgaac     300
acactgtcac aacttttcat gactaaagga tggccgacaa attccgtcta cttcaagagt     360
tatgctgata tagcgtcctt ctctgtagat ccgcagttat attgtgatta caatattgtg     420
ttagtacagt accaaaattc attagcgttg gatgtctcag aacttgctga tttaatttta     480
aatgaatggt tatgtaatcc gatggacgta acgttgtact attatcaaca aacagatgaa     540
gcgaataaat ggatatcaat gggagaatca tgtacggtta agtatgtccc ttaaatacg     600
caaactttag gaattggatg tacaacaacc gacgtcacaa catttgaaga ggtagcaaac     660
gcggaaaaat tagtaataac tgacgtcgtg gatggagtca atcacaagat taatattaca     720
atgaatacat gtactatacg gaattgcaaa aagttaggac cgagggaaaa tgtagcaatt     780
atacaagtag gtggttctga cgtcatagac ataacagcag atccaacaac gatcccacaa     840
actgaaagaa tgatgcgaat aaaattggaa aaatggtggc aggtgtttta taccgtagta     900
gattacataa atcaaatagt tcaggtaatg tccaaacgat caagatcact aaattcagct     960
gctttttact acagaatttta g                                               981
```

<210> 21
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G3 strain MaCH09404 outer capsid protein (VP7) gene,
      complete cds

<400> 21
```
ggctttaaaa gagagaattt ccgtctggct agcggttagc tccttttaat gtatggtatt      60
```

```
gaatatacca cagttttaac cttttttgata tcagttatat tgttgaatta cgtactcaaa    120
tccttaacta gaataatgga ctttattatt tacagatttc ttttaattat agttatatta    180
tcaccactcc ttaatgcaca aaattatgga ataaatcttc cgattactgg ctcaatggac    240
acaccatata cgaactcaac gcgagaggaa gtattcctaa cttcgacttt atgtttgtat    300
tacccaactg aagcagcaac agaaataaat gataattcat ggaaggatac actttctcag    360
ctattttttaa tcaaaggatg gccaacagga tctatttatt ttaaagatta tactgatatt    420
gcctcgtttt cagtcgatcc acaactgtat tgtgattata atttggtatt aatgaaatat    480
gacgctacac tgcaactgga catgtccgaa ctagcagatt tgttacttaa tgagtggtta    540
tgtaatccta tggatattac tttgtattat tatcaacaaa ctgatgaggc aaataaatgg    600
atttcaatgg gatcatcttg tactataaag gtatgtccac taaatacgca aacattagga    660
attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacagc tgaaaaatta    720
gtgattactg acgttgtaga tggagtcaat cataaattga acgtgacaac aaacacttgt    780
acgattagaa attgtaagaa attaggacca agggaaaacg tagcagttat acaggtaggt    840
ggcccagatg tgcttgacat aacagctgat ccaacgacaa tgccacaaac agaaagaatg    900
atgcgagtga attggaagaa atggtggcaa gtgttttata caatagttga ctacgtgaat    960
caaattgtgc aagcaatgtc caaaagatcg agatcattaa attctgctgc attttactac   1020
agagtataga tatagcttag attagaattg tatgatgtga cc                      1062
```

<210> 22
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<223> HIV epitope

<400> 22

```
Arg Thr Pro Lys Ile Gln Val
1               5
```

<210> 23
<211> 6
<212> PRT
<213> Artificial sequence

<220>
<223> HIV epitope

<400> 23

```
Glu Leu Asp Lys Trp Ala
1               5
```